

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-10. (Cancelled)

11. (New) A piston engine comprising:

a crankcase having a window formed therethrough and a flange surrounding said window to define a first joint face;

a crankshaft rotatably supported in said crankcase, said crankshaft having a first gear seated thereon at said window;

a balance unit housing secured to said crankcase, said balance unit housing having a second joint face abutting said first joint face; and

a balance shaft rotatably supported in said balance unit housing, said balance shaft having a second gear seated thereon and projecting through said window to engage said first gear, wherein a gear clearance between said first gear and second gear is adjusted by displacing said balance unit housing on said first joint face.

12. (New) The piston engine of claim 11, further comprising an intermediate shaft rotatably supported in said balance unit housing, said intermediate shaft having a third gear seated thereon and engaging a fourth gear seated on said balance shaft.

13. (New) The piston engine of claim 11, further comprising a second balance shaft rotatably supported in said balance unit housing, said second balance shaft having a third gear seated thereon to project through said window and engage said first gear.

14. (New) The piston engine of claim 13, further comprising an intermediate shaft supported in said balance unit housing, said intermediate shaft having a fourth gear seated thereon and engaging a fifth gear seated on said second balance shaft.

15. (New) The piston engine of claim 13, wherein the second gear meshes with the first gear at a position mutually offset by approximately 180° from a position that the third gear meshes with the first gear.

16. (New) The piston engine of claim 11, wherein said second joint face is formed at an obtuse angle relative to a crankshaft longitudinal axis and a balance shaft longitudinal axis in a section imaged normal to said crankshaft longitudinal axis.

17. (New) The piston engine of claim 16, wherein said first and second joint faces are parallel to a plane of symmetry of said crankcase.

18. (New) The piston engine of claim 11, further comprising a sliding guid interposed between said first and second joint faces for permitting displacement of said balance unit housing in a plane normal to said crankshaft.

19. (New) The piston engine of claim 18, wherein said sliding guide comprises a groove formed in one of said first and second joint faces and a key let into another of said first and second joint faces.

20. (New) The piston engine of claim 11, further comprising a pair of bearing assemblies rotatably supporting said balance shaft within said balance unit housing.

21. (New) The piston engine of claim 20, wherein each of said bearing assemblies comprises a first bearing half disposed in said bearing unit housing and a second bearing half including a bearing cover connected to said first bearing half.

22. (New) The piston engine in accordance with claim 20, wherein each of said bearing assemblies comprises an undivided bearing supported in said balance unit housing.

23. (New) The piston engine in accordance with claim 11, wherein said gear is centrally located along a length of said balance shaft.

24. (New) A piston engine comprising:

a crankcase having a first window formed therethrough, a flange surrounding said first window to define a first joint face, a second window formed therethrough and a second flange surrounding said second window to define a second joint face;

a crankshaft rotatably supported in said crankcase, said crankshaft having a first gear seated thereon at said first and second windows;

a first balance unit assembly including:

a first housing secured to said crankcase, said first housing having a third joint face abutting said first joint face;

a first balance shaft rotatably supported in said first housing, said first balance shaft having a first balance shaft gear seated thereon and projecting through said first window to engage said first gear;

wherein a first gear clearance between said first gear and said first balance shaft gear is adjusted by displacing said first housing on said first joint face; and

a second balance unit including:

a second housing secured to said crankcase, said second housing having a fourth joint face abutting said second joint face;

a second balance shaft rotatably supported in said second housing, said second balance shaft having a second balance shaft gear seated thereon and projecting through said second window to engage said first gear;

wherein a second gear clearance between said first gear and said second balance shaft gear is adjusted by displacing said second housing on said second joint face.

25. (New) The piston engine of claim 24, further comprising an intermediate shaft supported in said first housing, said intermediate shaft having an intermediate gear seated thereon and engaging a third balance shaft gear seated on said first balance shaft.

26. (New) The piston engine of claim 24, wherein said third joint face and said fourth joint face are formed at an obtuse angle relative to a crankshaft longitudinal axis, a first balance shaft longitudinal axis and a second balance shaft longitudinal axis in a section imaged normal to said crankshaft longitudinal axis.

27. (New) The piston engine of claim 26, wherein said first and second joint faces are parallel to a plane of symmetry of said crankcase.

28. (New) The piston engine in accordance with claim 24, further comprising a first sliding guide interposed between said first and third joint faces for permitting displacement of said first housing in a plane normal to said crankshaft, and a second sliding guide interposed between said second and fourth joint faces for permitting displacement of said second housing in a plane normal to said crankshaft.

29. (New) The piston engine in accordance with claim 28, wherein said first and second sliding guides comprise a first groove formed in said first joint face, a second groove formed in said second joint face, a first key let into said third joint face and extending into said first groove and a second key let into said fourth joint face and extending into said second groove.

30. (New) The piston engine in accordance with claim 24, wherein the first balance shaft gear meshes with said first gear at a position mutually offset by approximately 180° from a position that said second balance shaft gear meshes with said first gear.